

GREAT APE HOUSE GUIDE





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Front Cover: Atjeh's contented expression seems to suggest that happiness is a ripe banana. The orangutan's diet is composed mainly of fruit—a factor that is contributing to the disappearance of the species in the wild.

*Photograph by Jessie Cohen, NZP
Office of Graphics and Exhibits.*

Back Cover. The young orangutans spend much of their time in the spacious yard at the Great Ape House investigating visitors.



The sight of Tomoka standing on all fours in the grass, disdainfully looking at the visitors in the bright summer sun, was a dream come true. When he was a baby, I promised him that someday he would have a spacious, grassy yard to play in—with no bars and no wires. To see him stand there now, regally surveying his domain, is all the reward one could ask for all the years of planning and striving to get him a new home. The months we spent with the architects, planning commissions, contractors, and budget officials were all worth it.

The interior of the new Great Ape House is magnificent and inspiring. The spacious exhibition areas for the animals, the trees, and the close association between the animals and the visitors (that is, with little more than an inch of glass between them) are rewarding to behold. We finally have large cages for our apes and handsome trees for them to climb. We also have good visibility for the public. Most visitors do not see the spacious areas for the keepers' comfort and safety or the downstairs retirement dens for the apes. The animals now have a place to call their own where they can go when they don't want to look at the public. The apes haven't said anything yet about the kitchen, refrigerators, locker rooms, and offices for their human companions, but I am sure they benefit from these amenities.

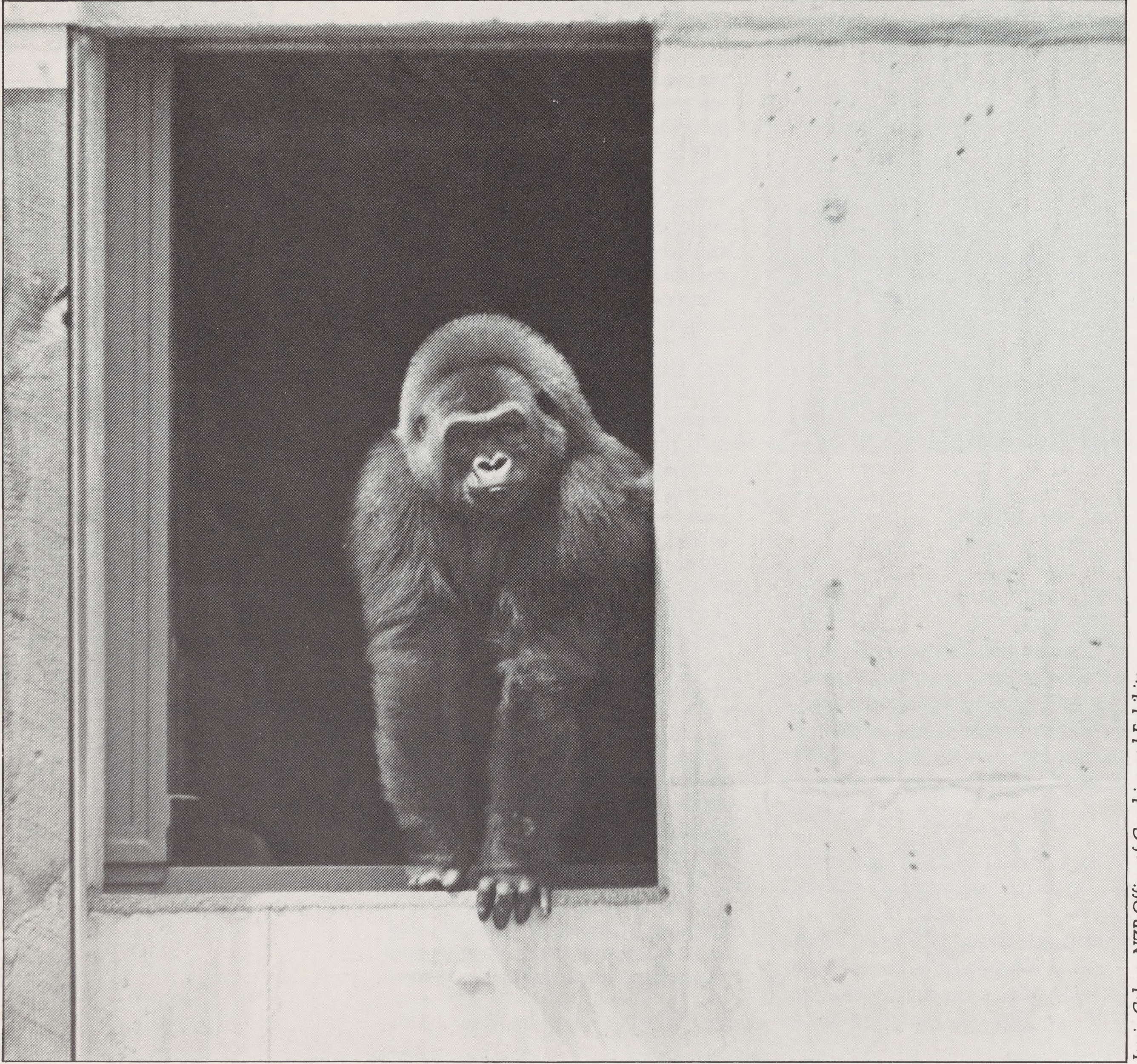
In a few years, the plants that form a backdrop to the exhibit areas will grow to provide the illusion of the lush green forests from which these animals come.

The artificial trees with some flexible branches are an innovation for us. There was some question whether the mature gorillas would use them, since they had not seen trees for most of their lives. In fact, Tomoka and the young orangutans have spent all their lives in zoos. It was very heartwarming to see the adult gorillas make their first tentative use of the trees, and now they are into them frequently. The young orangutans, of course, are having a ball!

We've had some nice compliments on the building from humans, but I think the best compliment is the reaction of the animals. They give every indication that they enjoy their new quarters and are comfortable.

What more could a zoo director ask than to have his visitors and his animals happy? The answer, of course, is more baby animals, but I'm sure that in time our new Ape House will be blessed with the pitter-patter of baby orangutans and gorillas. Until that time, I shall enjoy watching the people watch the animals and the animals watch the people—all having a good time.

*Theodore H. Reed, Director
National Zoological Park*



Jessie Cohen, NZP Office of Graphics and Exhibits

The Ultimate Ape House

Ed Gold and David K. Krohne

History—of a sort—was made in July when three of the National Zoo's gorillas cautiously left the comfort of their new home to explore their outside yards despite blistering heat and engulfing humidity. It was the first time Nikumba, the oldest of the Zoo's gorillas, had the run of the land after more than twenty years in captivity. And for females M'wasi and Femelle, it was the first opportunity to roam through an open space with lush grass.

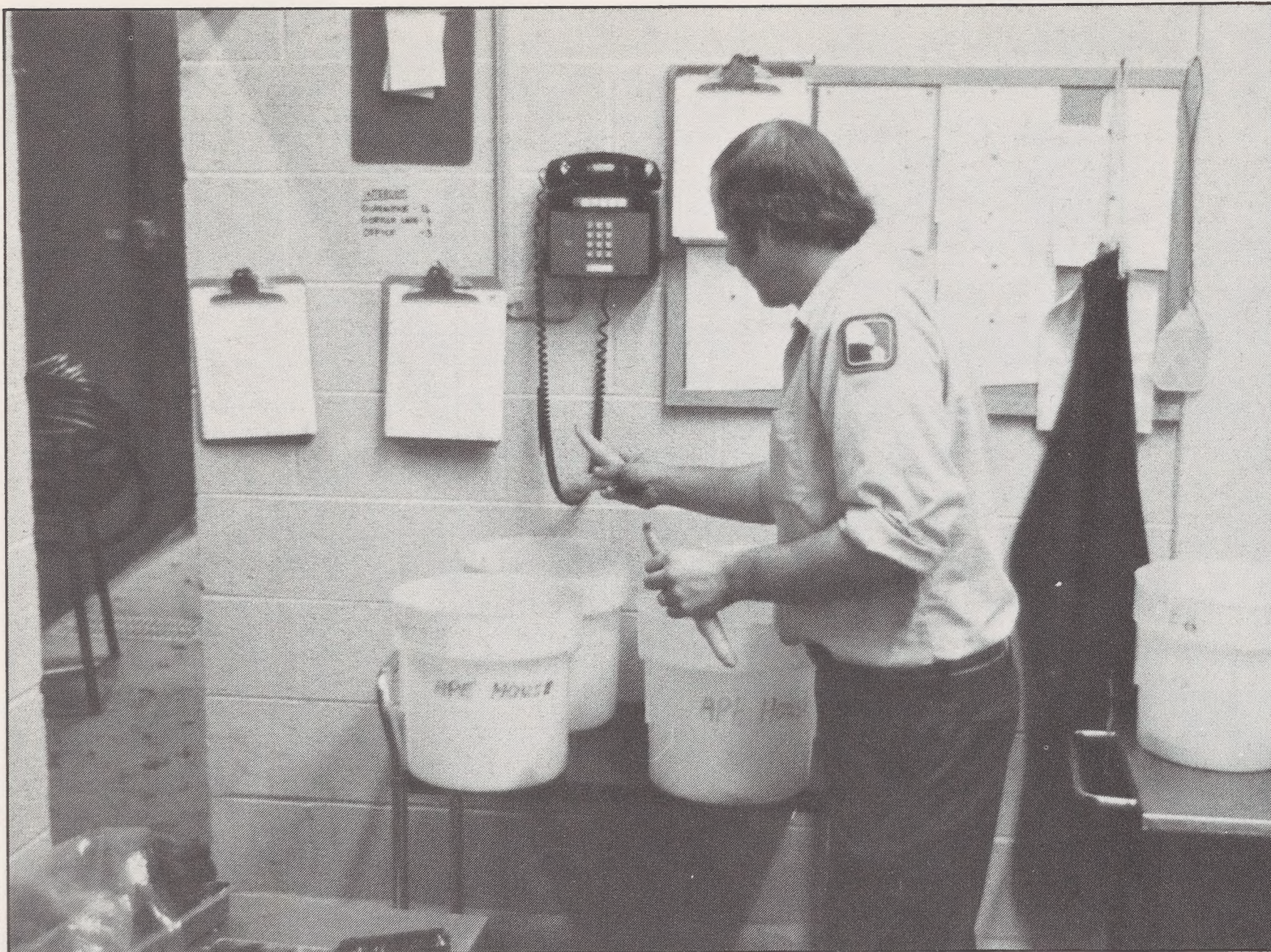
Whether it was the weather or the strangeness of the situation, the gorillas were not outside very long. The television crews and newspaper reporters—plus Zoo keepers, FONZ volunteers, and a few visitors who happened upon the historic event—were all glad to get back to the comfort of their air-conditioned surroundings, too.

Jessie Cohen, NRP Office of Graphics and Exhibits



The Zoo's Great Ape House combines the best of modern technology, animal management experience, and naturalness to provide deluxe accommodations for the gorillas and orangutans.

Opposite: *M'wasi cautiously ponders the world outside before venturing into the yard at the Great Ape House for the first time.*



Keeper Doug Donald prepares an afternoon meal for the gorillas in the kitchen of the Great Ape House.

The gorillas' introduction to their outside yard was greeted with as little fanfare as the opening of the Zoo's new \$2.9 million Great Ape House in April. But the two events mark a quantum jump in the care, management, and exhibition of the great apes at the National Zoo.

The opening of the Great Ape House is the latest event in the implementation of a master improvement plan launched by the Zoo in 1961. The construction and renovation has improved the living conditions of many species, but it

took twenty years to have a major impact on the lives of man's closest relatives—the great apes.

The old Small Mammal/Great Ape House, currently undergoing complete interior renovation as a home for the Zoo's small mammals, was built in 1937. "The cages for the great apes," according to mammalogist Miles Roberts, "were designed to exhibit animals and keep them from getting out. They weren't designed to meet the animals' needs."

Great apes have been kept in captivity for over 100 years, but they did not fare well for many years because of their susceptibility to human respiratory diseases and because little was known of how best to care for them in captivity. The only way to acquire apes for zoos was to capture them in the wild after killing the mother, and there was very little data on the feeding and management of the apes in captivity. Fortunately, most zoos throughout the world now accept only apes that have been born in captivity.

When the apes' former home was built in 1937, the primary concerns were to keep them contained and to keep them healthy. Cages had to be escape-proof, so the prevailing method of using 3/4-inch bars was employed. The other primary consideration was hygiene, so the cages had to be easy to disinfect and clean, and glass was installed in front of the cages to protect the apes from human respiratory diseases.

Then, as now, there were two opposing points of view about how apes ought to be kept in zoos. The hygienic school emphasized protecting the apes' health; cages tended to be small and easy to clean. The opposing school held that apes needed to be kept in the most natural social and environ-

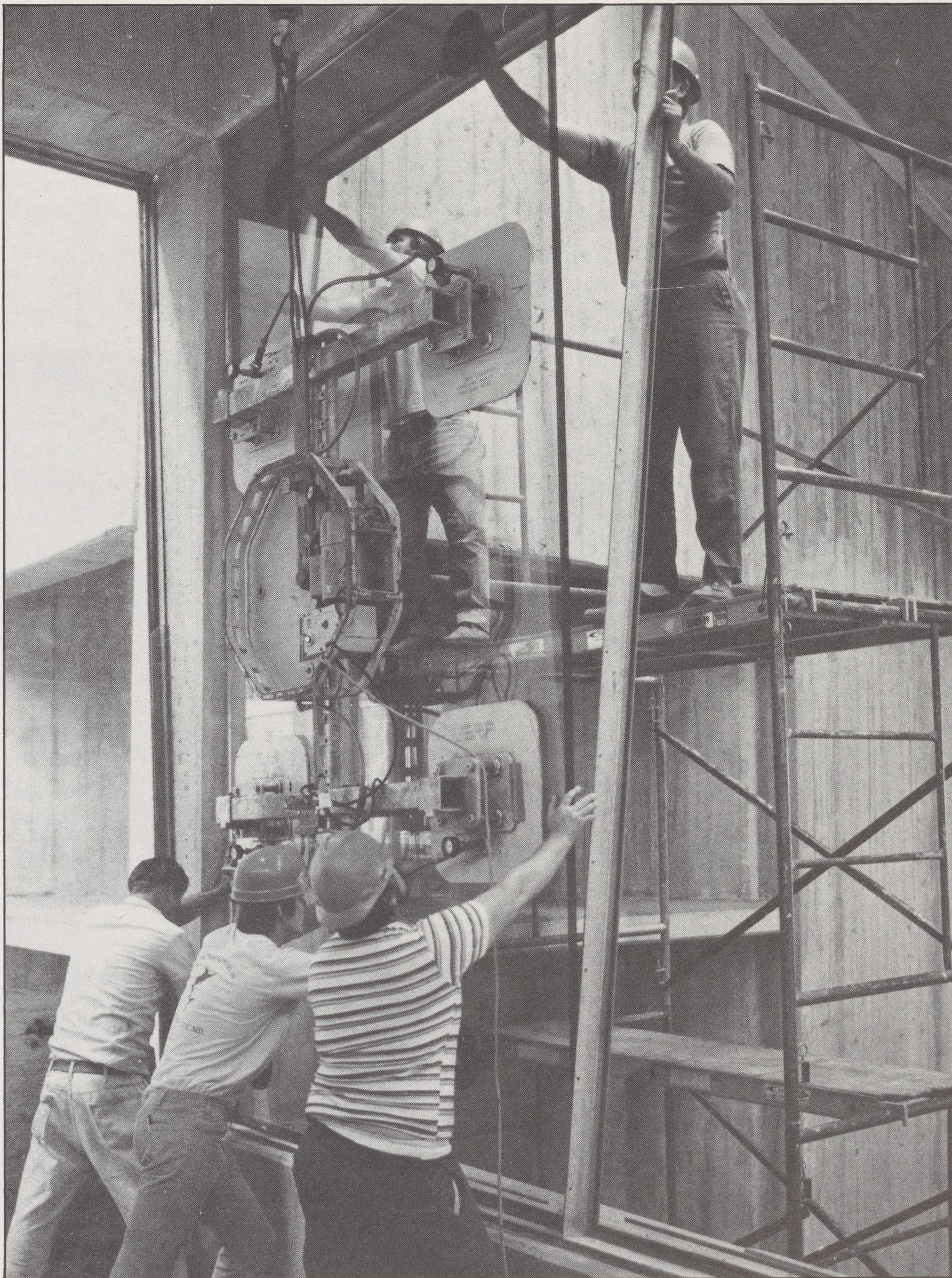
mental conditions in order to keep them active and content. Both viewpoints were given serious consideration in the design of the Zoo's new Great Ape House.

Zoo staff members had to acquaint the architects with the special requirements of housing such large, intelligent, and strong animals. The architects, in turn, had to inform Zoo staff members what materials and designs could best meet those needs. The design team visited other ape facilities and chose the best features from zoos in Cincinnati, San Diego, Chicago, Basel, Zurich, and Frankfurt.

Design considerations included scale, types of spaces, vantage points for visitors, barriers, and materials. "When we sat down to think about a new ape house," Roberts recalled, "we wanted to do several things. We wanted to exhibit the animals much more aesthetically, without bars, so visitors got a much better feeling not only about the animals but also about the way we were taking care of them."

"We also wanted to provide for the animals to live happier lives, to give them a lot more space and an environment that would provide variety," Roberts explained. "By that I mean that we want to give them choices: whether they want to

Mike Murdoch, NZP Office of Graphics and Exhibits



Workmen install panels of 1¼-inch-thick laminated glass—the only barrier between the great apes and visitors.

be on view or not, up or down, on warm floors or cool floors. We want them to be comfortable mentally and physically."

Two thirds of the building's 16,000 square feet is given over to the apes. The gorillas and orangutans each have four large rooms two or three stories high. The bars are gone—and the effect can be unsettling for the unsuspecting visitor! All that separates the apes from the public are structural panes of 1¼-inch-thick laminated glass which are tilted slightly to reduce reflection and glare. Natural light from skylights floods each room. The light in the public areas is tinted slightly, also to reduce glare. Lush tropical plants contribute to the jungle-like atmosphere of the public area, and plants will eventually cover the walls behind the apes' enclosures.

The building itself is something of an architectural wonder. The major problem, according to Roberts, was "trying to fit the size, number, and configuration of cages we wanted in the space we wanted. The architects had to be happy with it, and the animal managers had to be happy with the way the building was going to function."

The architects' biggest challenge was creating a building that would not jar the eye of the viewer. They

wanted to create an unobtrusive building that would not compete with the landscape, and they solved the problem by submerging much of the structure below ground level.

The new facility represents many innovations in the housing and

management of apes. A primary consideration was reducing boredom for these intelligent animals. As Roberts put it, "We want to keep them interested, and we're going to throw out a number of possibilities."

One is television. The apes seem to



Jessie Cohen, NZP Office of Graphics and Exhibits

Large exhibit enclosures are provided with fiberglass-gunitite trees and ropes for the apes to climb on.

like to watch programs on their own TV set—a gift from FONZ—but keepers are not sure whether they translate the two-dimensional image on the screen to an understanding of the three-dimensional figures depicted. They seem to like active, noisy shows, but are also reported to be among the millions who watch soap operas.

When they are separated, the apes will be taken to one of several holding rooms. Clean, well-lit, and easily accessible, these areas facilitate much more efficient care of the animals. When an animal is quarantined, another architectural innovation comes into play: a separate air system has a negative air flow so the sick animal does not infect healthy animals in other parts of the building. In fact, there are three separate air systems: one serves the public areas, another the quarantine areas, and a third, the animals' enclosures.

All the enclosures have sculptured fiber glass-gunite "trees" for climbing. The branches are flexible to provide a natural spring as the apes move across them. There are also thick ropes in the cages. Roberts notes that many subtle things go on between animals, "too subtle for us to see sometimes." Some of them can teach us a great deal about how the animals interact. "For instance, a gorilla will sit

at one end of the rope while another sits at the other end. The dominant gorilla will take the rope and shake it. The other one suddenly looks around with a nervous expression and gets down off the rope."

In the wild, apes usually avoid water. Neither gorillas nor orangutans can swim. However, in captivity some seem to like water, so there are pools both inside and in the yards. Drinking water comes from devices called "lickers." They are similar to faucets, but instead of a handle to turn on the water there is a movable stick that bends and lets the water through. To get a drink, the animal just puts its mouth on the "licker."

Special heat pads are built into the floor of each animal area. They can be set at different temperatures to allow the animals to choose what is most comfortable for them.

Innovations in animal management are taking place, too. In the past, the apes were fed twice a day. "It's very unnatural," Roberts adds, "for gorillas and orangutans to eat a big meal in the morning and a big meal in the afternoon. They like to eat during the day in small quantities." So the apes are now fed throughout the day, and some of the food is hidden in the branches of the "trees" to provide diversion.

Perhaps the greatest advantage of the new Great Ape House is that it will enable the Zoo to expand its gorilla population in a group structure similar to that in the wild. The social setting provides a positive psychological stimulus and is already achieving one of the Zoo's major goals for the apes—social interaction. With luck and time, it may even lead to mating.

The accommodations for the orangutans are similar to those of the gorillas. However, orangutans in the wild spend most of their time in trees, so their climbing sculptures are more vertically oriented than those of the gorillas. The ceilings in their rooms are also higher than those in the gorillas'.

Spacious outdoor yards are provided for both species. Glass and open moat barriers separate the animals from visitors.

Zoo staff members and the architects have gone to great lengths to insure that the new Great Ape House is one of the finest in the world. It combines the best of modern technology, animal management experience, and naturalness to provide an unparalleled experience for Zoo visitors and the finest of deluxe accommodations for its residents.



Jessie Cohen, NZP Office of Graphics and Exhibits

Born at the National Zoo in 1966, Atjeh has still not reached his maximum size. His fleshy cheek pads are still growing, his beard will become longer, and his hair will darken with age. Also known as "Junior," he has a very gentle, outgoing personality.

The Red Ape

Miles Roberts

"In this realm there be apes of diverse sorts," wrote Marco Polo from Penai, Northern Sumatra, in 1319. "They are small, having a face like a child, and those of that country do slay them and dress them in sweet spices."

During the 350 years after Polo's description of what could have been a gibbon or an orangutan, other travelers reported great red man-apes which never descended to the ground and lived alone in the forests of the East Indies. In 1658, naturalist Jacobus Bontius obtained a specimen of a large ape and shipped it home in a keg of rum. His description of the creature's anatomy is the first scientific record of the orangutan.

By the 1850s, a number of explorer-naturalists had visited the Indonesian archipelago and had de-

scribed orangutans both alive and dead. Most recognized that the orangutan was somehow different from the African apes—the chimpanzee and gorilla—but the distinction was hazy. Today we view the orangutan as the "deviant" ape, sharing little but ancestry with its African brethren.

The orangutan is classified with the gorilla, chimpanzee, and pygmy chimpanzee in the family Pongidae (from the Congolese *mpongi* meaning "gorilla"). It is the only member of the family not living in Africa. The fossil record tells us that the orangutan evolved from a proto-ape called *Dryopithecus* ("oak ape") that lived several million years ago in the area that is now northern India and Pakistan. Fossil remains of animals closely resembling the modern-day orangutan have been found in southern China and northern

Vietnam. Remains less than 10,000 years old have also been discovered in Indochina, indicating that the orangutan may have survived on the mainland at least until the end of the Ice Age.

Cooling temperatures during the Ice Age caused a southerly shift in the tropical ecosystem in which the orangutan lived. As the glaciers expanded, the sea level dropped, and some of the islands that now form the Indonesian Archipelago were joined by land bridges. During one or more of the periods when Sumatra, Java, and Borneo were connected, the ancestor of the modern orangutan made its move onto the Sunda shelf. The rise in sea level following the Ice Age once again isolated these islands from one another, forming the geographic configuration we can see in the atlas today.



Today the orangutan survives only on Borneo and Sumatra, having long since become extinct on the Asian mainland and on the island of Java. The reason for its extinction in these areas is not definitely known, but some scientists have linked its demise with the presence of the early hominid *Homo erectus* in these same areas. Scientists are not suggesting that there was direct competition between the arboreal fruit-eating orangutan and the terrestrial hunter *Homo erectus*. Rather, early humans may have hunted the orangutan to extinction. Orangutan remains have been found in pre-historic kitchen middens, and even today primitive tribes in isolated parts of Borneo hunt and eat orangutans.



The remaining orangutans have a remarkably small geographic range. Populations are fragmented and small enough to make the orangutan the most endangered ape. In Sumatra, a population of about 4,000 survives in a tiny area at the northern tip of the island. Its habitat is threatened on all sides by intensive cultivation and timbering. On Borneo, the orangutan fares somewhat better; available habitat is four times that on Sumatra. Unfortunately, the remaining forest is being invaded by humans dividing a once continuous habitat into pockets or "islands." And therein

Bonnie was born at the Rio Grande Zoo in Albuquerque in 1976. She loves her outdoor swimming pool and also likes to play with the tub in her enclosure.

lies the plight of the orangutan. It is becoming "over-islandized."

Scientists have known for some time that species inhabiting islands are considerably more susceptible to extinction than closely related forms living just a few miles away on the mainland. So the orangutan has two strikes against it: first, it retreated to the islands of Sumatra and Borneo; and second, the habitat on each of these islands has been further chopped up into small parcels. This may be a handicap that the species cannot overcome, and the orangutan will most likely be extinct in the wild by the turn of the century.

The imminent extinction of this magnificent anthropoid has stimulated a number of field studies; in fact, the orangutan has become one of the most intensively studied of all primates. George Schaller, John MacKinnon, Birute Galdikas, and the Rijksens have contributed long-term studies that have helped reveal the secrets of orangutan life.

The most puzzling features of orangutan lifestyle are its almost totally arboreal and solitary habits. Why do these large animals persist in living in the trees and alone in such uncharacteristic fashion for a primate? For the answer, we must start with the fossil record.

Jessie Cohen, NZP Office of Graphics and Exhibits



Pensi was born at the Grant Park Zoo in Atlanta in 1967 and lived there in a family group until she was brought to Washington as a mate for Atjeh. They have had three babies; one died soon after birth. Pensi is shy and quiet, and she likes to put things on her head.

Extinct orangutans were just as arboreal as the modern-day forms, and they were also about fifteen percent larger. Large size may have originally been an anti-predator defense mechanism, and the males—being considerably larger than the females—may have had a group protection role much like that of the male in modern gorilla society.

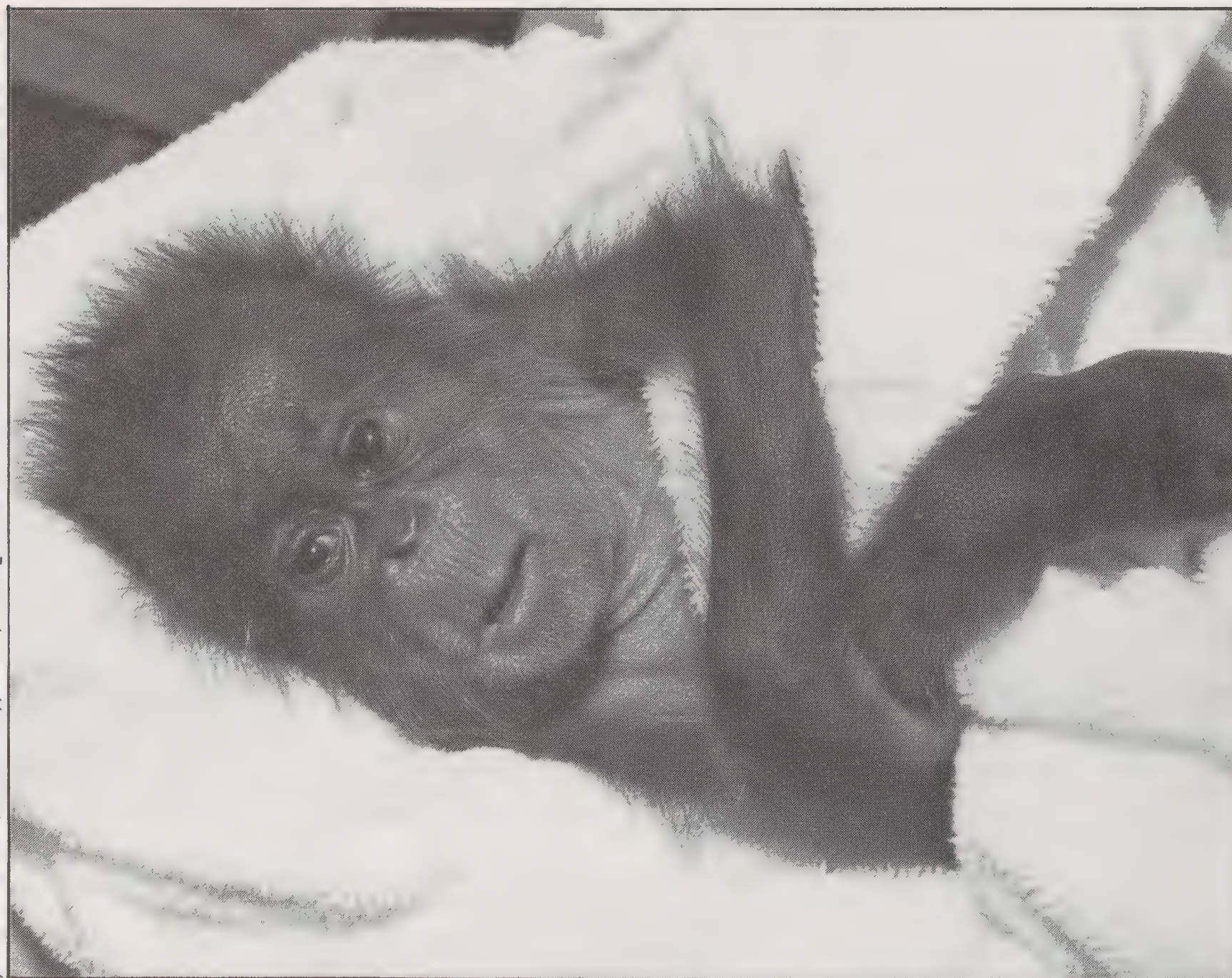
The arboreal habit of the orangutan may be an anti-predator mechanism, but it is more explainable in terms of foraging strategy—what an animal eats and how it gets it. If you

are going to be large, either to avoid predators or because large size helps you compete for a mate, you need a high-energy source of food. Fruits are a good source of concentrated energy, and in the tropical forest there are always some fruits available throughout the year. But you cannot just sit around waiting for fruits to ripen and drop to the ground, because gibbons, siamangs, binturongs, monkeys, giant squirrels, fruit bats, and hornbills will get the fruit in the trees, and the muntjacs, sun bears, wild pigs, and other monkeys are waiting for it on the ground. Your best strategy is to

beat the competition to the source of the fruit, which, in the tropical forest, is in the canopy, and this means you have to be arboreal. Once you are arboreal, your large size helps you chase away or intimidate competing species. So things start to fit together at some cost.

The problem with being a fruit-eating specialist is that, unlike leaves, fruits are not continuously available throughout the forest. Different species bear fruit at different times of the year, and frequently individual trees of the same species may be 100 yards or more away from each other. Given the irregular nature of the fruiting season and the widely dispersed nature of tree species in the tropical forest, it is clear that it may take a fairly large area to support a large fruit specialist such as an orangutan. Herein lies the secret of the more or less solitary nature of the orangutan. Because these large and relatively immobile animals can only forage in a small area each day, it helps if individuals split up into small foraging units. Males, with a body mass equivalent to that of a female and her dependent young, forage alone, while females tend to feed with their young. Juveniles—those who have left their mothers—may form temporary associations until they become too large to forage effectively in groups. At this

Jessie Cohen, NZP Office of Graphics and Exhibits



Indah, daughter of Atjeh and Pensi, was born at the National Zoo in August 1980. She is being raised with other baby orangutans at the San Diego Zoo.

time they, too, become more solitary.

This social system is not really "solitary" in the strict sense, and individuals are far from asocial. One scientist has called the orangutan "desocialized," meaning that the lack of predation pressures and other environmental challenges has required a once close-knit male-female social structure to become more loosely constructed. Many behaviors that help strengthen social bonds in other primates, such

as grooming and mutual play, are less evident in the orangutan, and adults live most of their lives out of one another's sight. But social signals—in the form of vocalizations and other long-distance sound displays—do persist in a much more dispersed fashion. In this sense, the orangutan lives in an "expanded" social group.

The social organization, anatomy, and behavior of the orangutan are products of evolution that take centuries and generations to change



Azy (left) is the first second-generation orangutan born in America. He and Bonnie (right) have been together since they were babies, and we hope that one day they will continue the orangutan family begun with Azy's grandparents Archie and Jennie.

significantly. The pity is that the orangutan is adapted to a tropical forest ecosystem that is rapidly being destroyed by resource-hungry humans, and the orangutan cannot adapt quickly enough to these changes. Unless "progress" is halted in Borneo and Sumatra, the orangutan will be extinct except for the few captive survivors.

Captive propagation of the orangutan takes on an urgent nature as the lifespan of the species in the wild

ticks off with every acre deforested. The objective must be to maintain a population large enough to provide significant genetic variability that also breeds well enough to become self-sustaining. Unfortunately, this goal has not yet been achieved. This is particularly disturbing in view of the fact that orangutans have been maintained in captivity for over 100 years. The captive population size is well over 800; no other endangered species enjoys such a large population in captivity.

The key to success is in making the captive population self-sustaining; that is, ensuring that no additional wild-caught animals need to be added to the population. Zoo people often refer to it as "multiple-generation reproduction," which simply means that young are born to parents who were themselves born in captivity. Obviously, self-sustaining populations depend on multiple-generation reproduction.

The alarming fact of orangutan propagation is that it was not until 1977 that the first second-generation orangutan was born in captivity. That special orangutan is Azy, who is on exhibit in the new Great Ape House with his mother Pensi, his father Atjeh, and his childhood companion Bonnie. He represents an important milestone in the role zoos are playing in the conservation of this endangered species. Since Azy's birth, a few more second-generation animals have been born in zoos. Among them is Azy's sister Indah, born last year and currently being raised with other orangutan babies at the San Diego Zoo. Thus, the captive reproduction effort appears to be making significant—if late—progress. Perhaps zoos will be able to sustain a large enough breeding population before extinction in the wild occurs. It will be a close race—and we may not win.



Jessie Cohen, NZP Office of Graphics and Exhibits

M'wasi was probably born in 1963 or 1964 and was obtained from Africa by the Bronx Zoo in 1965. She has been at the National Zoo since 1979. M'wasi will probably never be able to have babies, but she does provide companionship for the other gorillas.

The Gentle Giant

David Baer and Melanie Bond

The first recorded sighting of gorillas in the wild occurred in 460 B.C. when a group of sailors and soldiers from Carthage set out to explore Africa. With Hanno as their commander, they sailed to parts of Africa previously unexplored. The Carthaginians encountered "gigantic black people that were covered with hair." Most likely these were gorillas. They tried to capture and enslave these "creatures," but were only able to kill and skin a few. The skins were taken back to Carthage where they were hung in a temple. Through the years, many explorers went to Africa to hunt, capture, and study. But the first detailed scientific data about gorillas was not collected until the early 1860s when the American explorer Paul Du Chaillu acquired specimens to measure.

From earliest accounts to recent movies, the gorilla has been portrayed as a fierce, terrifying animal. Behavioral and ecological research by George Schaller and more recently by Dian Fossey has erased these "King Kong" myths.

The gorilla is the largest living primate and is often described as "the gentle giant" because of its placid disposition. There are two subspecies of gorillas: the lowland (or coastal) gorilla (*Gorilla gorilla gorilla*) and the mountain gorilla (*Gorilla gorilla beringei*). The major difference between the two subspecies is their geographic distribution in Africa. The lowland gorilla lives in the lower elevations of western equatorial Africa (Cameroon, Rio Muni, Congo, and Zaire), and the mountain gorilla lives in

the mountains and lowlands of central Africa (up to elevations of 11,500 feet). The mountain gorilla is found in minuscule home ranges on the slopes of the Virunga volcanos of Uganda, Zaire, and Rwanda. According to Dr. Dian Fossey, who has studied the wild mountain gorilla population for thirteen years, there are no mountain gorillas in captivity in the United States. Aside from differences in geographic distribution, there are also a number of anatomical differences between the lowland and mountain gorillas, even though they are closely related.

Gorillas, like humans, are primates and are one of man's closest living relatives. According to current thought, the evolutionary di-



Keeper Walter Tucker feeds 26-year-old Nikumba, who was captured in French Equatorial Africa in 1954 and given to the Zoo by former FONZ President Arthur W. "Nick" Arundel. Nikumba has sired four offspring, including Tomoka, who is also on exhibit at the Great Ape House.

vergence between gorillas and man occurred ten to fifteen million years ago. Biochemical studies have indicated that the genetic structure of humans and gorillas is very similar. This similarity is one reason why many people study gorillas.

The average brain size of gorillas is about 32 cubic inches, while man's is about 87 cubic inches. There have been many attempts to test the intelligence of gorillas, but the results are inconclusive. There have also been several attempts to teach gorillas sign language; again, interpretation of results is difficult.

Natural vocalizations of gorillas include grunting, and nonverbal communication includes shaking trees, throwing objects, and chest-beating.

In the wild, gorillas travel in groups of five to fifteen, sometimes up to forty. The group usually includes a dominant "silver-backed" male (so named because when a male gorilla is about ten years old his back turns a silver-gray color), several subordinate males, and several females with their offspring. In very large groups, there may be two or three dominant males. One "silver-

backed" male controls the group, and females usually mate with him. If the dominant male is confronted and defeated by another male, he will relinquish leadership of his group. Killing is rare during these dominance interactions. Most "fights" are ritualized; that is, specific displays and vocalizations usually replace actual fighting and killing. Many intricate behavioral cues are employed during these confrontations.

Like many animals, gorilla groups—or troops—travel within an area called a home range; it can be shared by more than one troop. The area is usually ten to fifteen square miles. The dominant male makes decisions as to which direction and how fast the group will travel and where it will stop to feed. He is also responsible for protecting his troop.

Depending on food availability, gorillas may travel as little as a few hundred feet or as much as three miles in one day. At night they stop and build nests by intertwining twigs and branches. The nests are made on the ground or in trees, but they are rarely more than thirty feet above the ground. Whether the nests are built on the ground or in trees depends on the local habitat. The nests are used for only one night; in the morning the troop moves on in search of food.

Unlike fruit-eating orangutans and chimpanzees, gorillas eat roots, bark, leaves, flowers, buds, pith, and sometimes fruit of many different plants. Mountain gorillas eat nettles, thistles, wild celery, goosegrass, dock, sorrel, and many other plants. The diet of lowland gorillas includes ginger fruits and piths, ironwood bark, cacao (chocolate) fruit, banana pith, and the bark, leaves, and roots of the manioc (tapioca) plant. These last three species were introduced for agricultural purposes, as were peanuts, pineapple, and sugar cane, which are also favored by gorillas. Wild vegetation that gorillas would normally eat is destroyed by native farmers and replaced with these crops, but when gorillas substitute them for items in their natural diet, they are often killed for their "crime."

Although many gorillas in captivity relish a little meat, they are not known to eat meat in the wild except in isolated reports of cannibalistic infanticide, the meaning of which is still being debated.

There is no fixed breeding season for gorillas. Babies are born throughout the year. Females reach sexual maturity and begin a thirty-one-day menstrual cycle when they are about eight years old. Males do not appear to have any reproductive cycle as other mammals do,

Jessie Cohen, NZP Office of Graphics and Exhibits



Tomoka, whose name means "son of Moka," was born at the National Zoo in 1961. He was the second gorilla born in captivity in the world.

and they tend to reach sexual maturity at about nine or ten years.

A single baby is born after a gestation period of about nine months. Only one instance of twins, which were fraternal, has ever been reported. Gorilla babies weigh slightly less than humans. A female gorilla can bear offspring every three-and-a-half to four-and-a-half years. Infant mortality runs as high as fifty percent in the wild. Many infants and juveniles die from respiratory and intestinal diseases, and humans and leopards often prey on young gorillas.

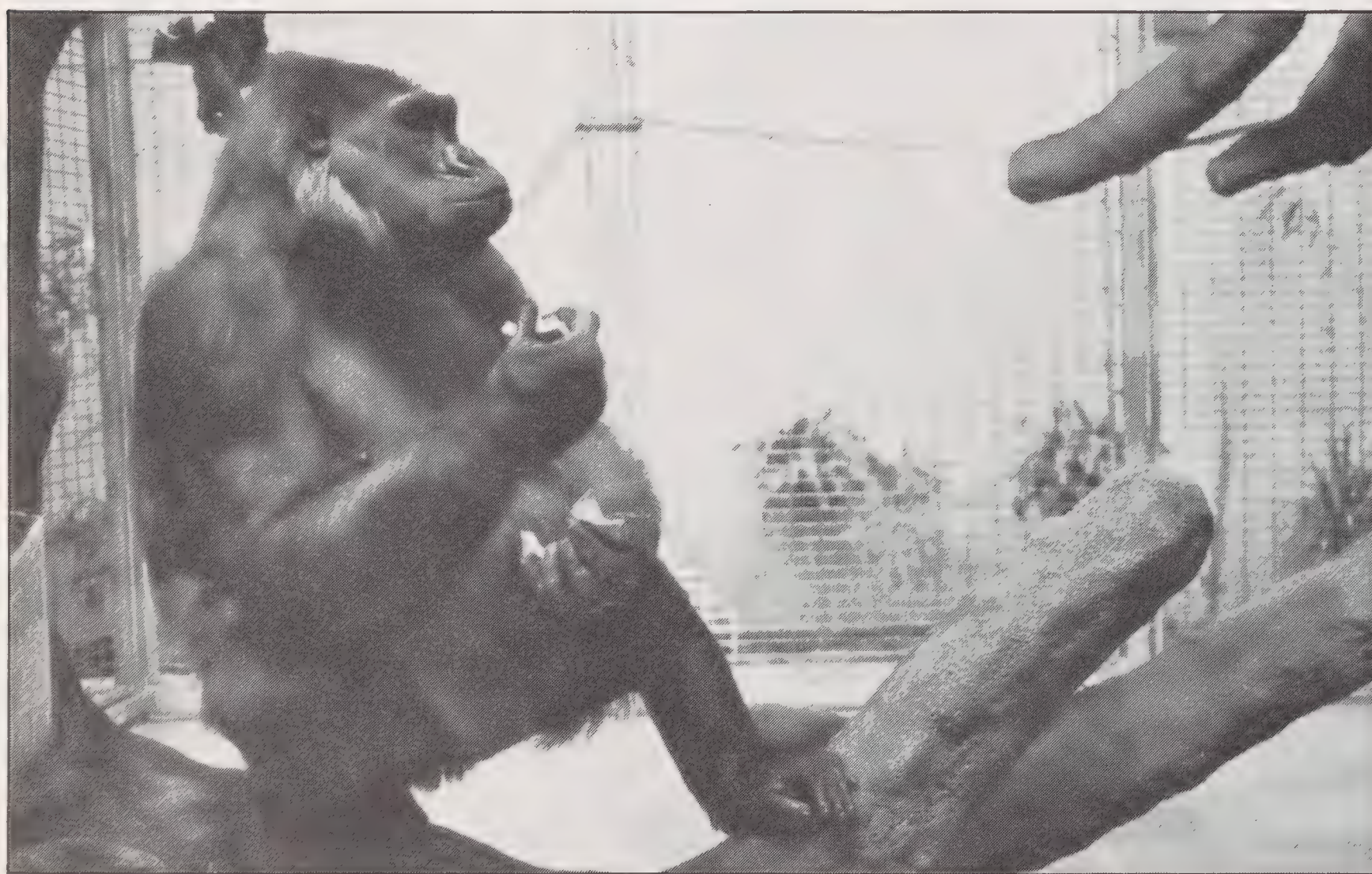
When a gorilla is born, it is too small to hold onto its mother's back as many other apes and monkeys do. The mother must carry the infant in her arms. The mother-infant bond is very strong, especially during the first few months. Within two months the infant is large enough to cling to its mother and ride with her. After another month the infant can crawl, play, and climb on vines and trees while its mother sits nearby and watches.

The early development of the infant's physical strength is matched by its growing curiosity. The young

begin to eat plant material when they are about two months old but continue to nurse until they are eighteen months old. When they are about four months old, they begin to walk on all fours and to interact with older animals in the troop as they start the socialization process. It is not uncommon for the young to imitate behavior of the older animals, such as chest-beating.

Adult gorillas usually reach a standing height of four to six feet and weigh about 400 pounds; females are smaller than males. The life span for gorillas in the wild is probably fifty years. The oldest living gorilla in captivity is the Philadelphia Zoo's Massa, who is now fifty years old.

The four gorillas currently on exhibit at the National Zoo are of the lowland subspecies. Nikumba, Femelle, and M'wasi were captured in the wild twenty or more years ago. Tomoka, the son of Nikumba and his first mate Moka (now deceased), was one of the first gorillas born and raised in captivity. Nikumba and Femelle have been paired since shortly after Moka's death in 1968. They have produced one offspring, M'geni-Mopaya, currently living with two other young gorillas at the Bronx Zoo. M'wasi also lived with a group of gorillas at the Bronx Zoo until 1979, when she



Femelle enjoys a snack in the branches of one of her fiberglass-gunitite trees. She was captured in the Cameroon and arrived at the Zoo in 1965. She is the mother of M'geni Mopaya, born in 1972 and now at the Bronx Zoo. Femelle is a bit overweight and is on a diet.

was sent to the National Zoo as a companion for Tomoka.

The Great Ape House staff is currently introducing Femelle, who is a novice at interacting with another female, to M'wasi—the “old pro”—hoping we can eventually form a more natural social grouping of a male and two or more females. This should be a positive experience for all the animals involved. The gorillas should spend less time being bored and inactive, thus making life more interesting for them and for the visitors watching them.

The new social structure could also spark a seriously waning interest in reproduction—a fate all too common for many captive gorillas. In fact, at a recent symposium in Atlanta, zoo staff members (including representatives from the National Zoo), veterinarians, behavioral scientists, and others met to discuss the serious problem of infertility in great apes. Little is known about the causes and cures of infertility in humans, and this is even more true of the “gentle giants.”

Under an agreement reached sev-

eral years ago by the International Union of Directors of Zoological Gardens, zoos that wish to exhibit gorillas must obtain captive-born animals. Since the primary method of acquiring a gorilla for exhibit in the past involved shooting the mother and capturing the infant, this organization realized that continued removal of young gorillas from the wild would also remove badly needed breeding females and quicken the demise of the gorilla. Therefore, it is even more critical that zoos exhibiting the species make every possible effort toward breeding success.



The majestic silver-backed Nikumba cautiously eyes onlookers from his outdoor yard. This photograph was taken on the first day he explored his new domain.

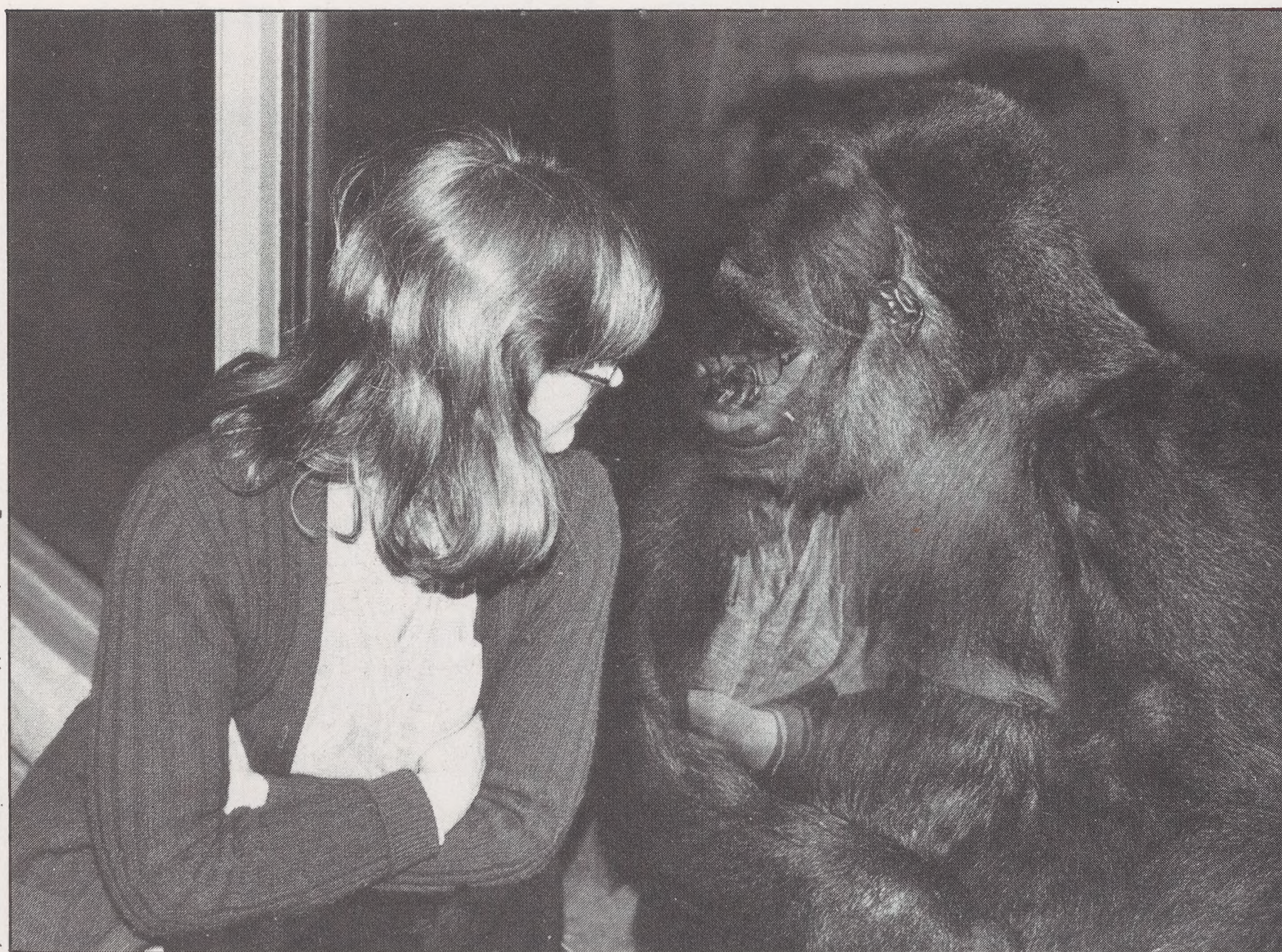
How Do You Watch a Gorilla?

Melanie Bond

You know the answer to that old joke—*very carefully!* Behind the humor lies real truth. Gorillas are basically shy, peace-loving animals. By carefully observing them and watching how they watch you and each other, you can learn some very simple rules for gorilla-watching.

First, and perhaps most important, *don't stare!* When you were very young, your parents probably taught you not to stare at people. In gorilla society it is also considered rude to stare. A staring gorilla is communicating a challenge to fight—or at least an immediate “cease and desist” command—as when the silver-backed male group leader glares at squabbling females or rowdy youngsters. As you watch the Zoo's gorillas, you may see them glance at you from under

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M'wasi exchanges a friendly glance with visitor Brandy Clymire. Crouching with your back resting against the glass seems to stimulate the animals' curiosity and encourages them to investigate at close range.

lowered brows and then look away quickly as soon as—or perhaps a split second before—your eyes meet. This is a courtesy they also extend to each other, and it is the behavior you should imitate when observing them closely.

Size is intimidating to both apes and humans. Our imaginary monsters—from King Kong to Godzilla—are all larger than life. Male gorillas are considerably larger than females, and this is fitting since one of the males' roles is the defense of their families. When they wish to impress each other, both males and females rise up on their hind legs and beat their chests or shake branches as part of their defensive/aggressive displays. When they wish to appear unimposing, they stand quietly on all fours with their heads tucked down, almost slouching. Visitors can reduce their size—and the animals' discomfort—by crouching down, especially when closely approaching the glass-fronted enclosures.

Since the new Great Ape House opened, I have been fascinated by the fact that young children seem to be excused by the apes for violating the staring taboo. Perhaps it is because they are so small, and a childish stare is an insignificant threat. I have seen our oldest male gorilla Nikumba gaze back into a

toddler's eyes with curiosity, only to turn his back when the child is joined by his parents.

We have also found that crouching with your back resting against the glass seems to stimulate the animal's curiosity, causing him to investigate at close range. It may be that one back stands out in a sea of faces.

A good rule of thumb to follow in determining appropriate gorilla-watching behavior is to act around these apes as you would around small children. Rapid movement, loud noises, and other forms of boisterous behavior are unacceptable to both babies and gorillas.

You may observe other visitors in the Great Ape House who are not familiar with these guidelines, and it may appear that the animals are not troubled by their inappropriate

behavior. Fortunately, our apes have adjusted quite well to their new environment and appear to be less sensitive to the crowds than we had anticipated. In large measure this can be attributed to the "privacy areas" designed into the new exhibit. Each animal has an area of refuge to which he can retreat if he feels the pressure of too many eyes. Just knowing they have a private spot probably makes life a lot more comfortable for these intriguing animals.

Perhaps because they are more solitary in the wild, orangutans do not display as much sensitivity to close observation as gorillas do. Even so, the same suggestions apply for viewing the orangutans.

Following these simple guidelines for ape-watching should make for a more pleasant and interesting visit on both sides of the glass.

Contributors

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Mammalogist **Miles Roberts** has been at the National Zoo for ten years. He was the subject of a feature article in the January-February 1981 *ZooGoer* and provided extensive and valuable assistance in the development of this special Great Ape House issue.



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